UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,012	09/25/2003	Kavitha Srinivas	YOR920030251US1 (16768)	7874

23389 7590 11/23/2007		EXAMINER
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ART UNIT	PAPER NUMBER
2192	

MAIL DATE	DELIVERY MODE
11/23/2007	PAPER

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/671,012	SRINIVAS ET AL.
	Examiner	Art Unit	
	Thuy Dao	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE __03__ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 September 2007*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-7,11,12,15,17-19 and 21* is/are pending in the application.

    4a) Of the above claim(s) *2,3,8,10,16,20 and 22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-7,11,12,15,17-19 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.

Applicant's submission filed on September 17, 2007 has been entered.

2. Claims 1, 4-7, 11-12, 15, 17-19, and 21 have been examined.

Response to Amendments

3. Per Applicants' request, claims 1, 7, 15, and 21 have been amended and claims 2-3, 8, 10, 16, 20, and 22 have been canceled.

4. The objection to the abstract is withdrawn in view of Applicants' amendments.

5. The objection to claims 10-12 is withdrawn in view of persuasive Applicants' arguments.

Response to Arguments

6. **Claims 1 and 15** (Remarks, pp. 10-16): Applicants' arguments have been fully considered. However, they are not persuasive. After further consideration, the examiner notes that Morshed also teaches the newly added limitations.

Morshed discloses a program storage device and *a software tool containing machine readable instructions stored on a physical medium for monitoring the behavior of a running computer program for code patterns that violate a given set of coding rules* (e.g., FIG. 2-4 and related text), *the software tool comprising:*

a pattern detector manager including machine readable instructions for inserting into a running computer program a plurality of entry breakpoints (e.g., FIG. 14, blocks 442, 448, 452, 456, 460, 464, col.23: 1 – col.24: 11),

automatically, with little or not intervention from a user (e.g., col.20: 14-19; col.20: 63 – col.21: 5),

each of said entry breakpoints being associated with one of a plurality of defined coding patterns (e.g., FIG. 14, blocks 446, 450, 454, 458, 462, coding patterns as End of Method?, New LNo?, Throw?, Exit?, Method Call?); and

a plurality of pattern detectors, each of the pattern detectors being associated with one of said defined coding patterns, including machine readable instructions, and being invoked by the pattern detector manager, after one of the entry breakpoints associated with the coding pattern associated with said each of the pattern detectors, is reached in the computer program (e.g., FIG. 15, col.24: 11-62, instrumentation for a method entry; FIG. 16, col.25: 1-37, instrumentation for an abort; FIG. 17, col.25: 38-67, instrumentation for a method exit),

for determining whether the computer program violates the coding pattern associated with said each of the pattern detectors (e.g., FIG. 12,col.21: 6-67; col.23: 36 – col.24: 11)

by inserting into the program at least one further breakpoint for identifying a respective step in the program that is part of the coding pattern associated with said one of the entry breakpoints (e.g., FIG. 14, block 442, Instrument Method Entry, block 446 "End of Method? YES", block 448 Instrument for Abort, col.23: 1 – col.24: 11;

instrumenting enter, exit, and abort, col.24: 47-57;

FIG. 17, instrumenting method exit and related text;

entry breakpoint and subsequent breakpoints in step mode, col.66; 20-31;

FIG. 14, after Instrument Method Entry at block 442, inserting further breakpoints at blocks 452, 456, 460, 464, and/or 448);

wherein the plurality of defined coding patterns is selected from a group comprising best practice patterns and problematic coding patterns (e.g., either performance, execution, code, or overall coverage, col.1: 24-36; col.32: 61 – col.33: 27; col.55: 31-47).

7. **Claim 21** (Remarks, pp. 16-18): Applicants' arguments have been considered but are moot in view of the new ground(s) of rejection. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action.

Accordingly, the examiner respectfully maintains the 35 USC §102/103 rejection over claims 1, 4-7, 11-12, 15, 17-19, and 21.

Claim Objection

8. Claim 6 is objected to because of minor informalities. The phrase in line 1 is considered to read as - -A tool according to Claim [[3]] 1, wherein ...- -.

Appropriate correction is required.

Claim Rejections – 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1 4-7, 15, and 17-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Morshed (art of record, US Patent No. 6,721,941).

Claim 1:

Morshed discloses *a software tool containing machine readable instructions stored on a physical medium for monitoring the behavior of a running computer program for code patterns that violate a given set of coding rules* (e.g., FIG. 2-4 and related text), *the software tool comprising:*

*a pattern detector manager including machine readable instructions for
inserting into a running computer program a plurality of entry breakpoints* (e.g., FIG. 14,
blocks 442, 448, 452, 456, 460, 464, col.23: 1 – col.24: 11),

automatically, with little or not intervention from a user (e.g., col.20: 14-19;
col.20: 63 – col.21: 5),

*each of said entry breakpoints being associated with one of a plurality of
defined coding patterns* (e.g., FIG. 14, blocks 446, 450, 454, 458, 462, coding patterns
as End of Method?, New LNo?, Throw?, Exit?, Method Call?); *and*

*a plurality of pattern detectors, each of the pattern detectors being
associated with one of said defined coding patterns, including machine readable
instructions, and being invoked by the pattern detector manager, after one of the entry
breakpoints associated with the coding pattern associated with said each of the pattern
detectors, is reached in the computer program* (e.g., FIG. 15, col.24: 11-62,
instrumentation for a method entry; FIG. 16, col.25: 1-37, instrumentation for an abort;
FIG. 17, col.25: 38-67, instrumentation for a method exit),

*for determining whether the computer program violates the coding pattern
associated with said each of the pattern detectors* (e.g., FIG. 12,col.21: 6-67; col.23: 36
– col.24: 11)

*by inserting into the program at least one further breakpoint for identifying
a respective step in the program that is part of the coding pattern associated with said
one of the entry breakpoints* (e.g., FIG. 14, block 442, Instrument Method Entry, block
446 "End of Method? YES", block 448 Instrument for Abort, col.23: 1 – col.24: 11;

instrumenting enter, exit, and abort, col.24: 47-57;

FIG. 17, instrumenting method exit and related text;

entry breakpoint and subsequent breakpoints in step mode, col.66;
20-31;

FIG. 14, after Instrument Method Entry at block 442, inserting
further breakpoints at blocks 452, 456, 460, 464, and/or 448);

*wherein the plurality of defined coding patterns is selected from a group
comprising best practice patterns and problematic coding patterns* (e.g., either

performance, execution, code, or overall coverage, col.1: 24-36; col.32: 61 – col.33: 27; col.55: 31-47).

Claim 4:

The rejection of claim 1 is incorporated. Morshed also discloses *a debugger for debugging the computer program, and further including a launcher to invoke the pattern detector manager when the debugger is used to debug the program* (e.g., FIG. 12, col.21: 6-67).

Claim 5:

The rejection of claim 1 is incorporated. Morshed also discloses *the pattern detector manager removes the entry breakpoints at specified times* (e.g., col.20: 6-39).

Claim 6:

The rejection of claim 1 is incorporated. Morshed also discloses *the pattern detector manager removes the entry breakpoints and the further breakpoints at specified times* (e.g., col.20: 14-62).

Claim 7:

The rejection of claim 1 is incorporated. Morshed also discloses *the pattern detector manager includes means for monitoring for the occurrences of the entry breakpoints; and the pattern detector manager inserts said at least one further breakpoint into the computer program in response to the monitoring means detecting the occurrence of said one of the entry breakpoints* (e.g., FIG. 15-17, col.24: 11 – col.25: 67).

Claim 15:

Morshed discloses *a program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method*

steps for monitoring the behavior of a running computer program (e.g., FIG. 2-4 and related text), *said method steps comprising:*

using a pattern detector manager to insert into a running computer program a plurality of entry breakpoints, each of said entry breakpoints being associated with one of a plurality of defined coding patterns (e.g., FIG. 14, col.23: 1 – col.24: 11; FIG. 15, col.24: 11-62), *and*

monitoring to detect the occurrences of the entry breakpoints in the computer program, and upon detection of one of the entry breakpoints in the computer program, further inserting into the program at least one further breakpoint for identifying a respective step in the program that is part of the coding pattern associated with said one of the entry breakpoints (e.g., col.24: 47-57; FIG. 17 and related text; col.66: 20-31); *and*

using a plurality of pattern detectors for monitoring the computer program, wherein each of the pattern detectors are associated with one of said defined coding patterns, including the step of the program detector manager invoking each of the pattern detectors, after one of the entry breakpoints associated with the coding pattern associated with said each of the pattern detectors, is reached in the computer program, for determining whether the computer program violates the coding pattern associated with said each of the pattern detectors (e.g., FIG. 15, col.24: 11-62; col.1: 24-36; col.32: 61 – col.33: 27; col.55: 31-47).

Claims 17-19:

Claims 17-19 recite the same limitations as those of claims 4-7, wherein all claimed limitations have been addressed and/or set forth above. Therefore, as the reference teaches all of the limitations of the above claims, it also teaches all of the limitations of claims 17-19.

Claim Rejections – 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set
forth in section 102 of this title, if the differences between the subject matter sought to be patented and
the prior art are such that the subject matter as a whole would have been obvious at the time the
invention was made to a person having ordinary skill in the art to which said subject matter pertains.
Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 21 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable
over Morshed in view of US Patent No. 6,839,893 to Bates et al. (art made of record,
hereinafter "Bates").

Claim 21:

Morshed discloses *a method of detecting code patterns in a computer program
that violate a given set of coding rules, the method comprising the steps of:*

*defining a set of coding rules, each coding rule of the set of the coding
rules being associated with a respective one pattern detector of a set of pattern
detectors* (e.g., FIG. 14, blocks 446, 450, 454, 458, 462);

providing a pattern detector manager for managing said pattern detectors
(e.g., FIG. 14, blocks 442, 448, 452, 456, 460, 464, col.23: 1 – col.24: 11);

*providing a computer program, and running the computer program in a
debug mode* (e.g., FIG. 12, col.21: 6-67; col.23: 36 – col.24: 11);

*the pattern detector manager identifying, during the running of the
computer program in the debug mode, points in the computer program that relate to
said coding rules* (e.g., FIG. 15-17, col.24: 11 – col. 25: 67), *and*

*said pattern detector manager inserting into the computer program an
entry breakpoint at each of said identified points* (e.g., col.20: 40-49; col.20: 63 –
col.21: 5);

*said pattern detector manager invoking each of the pattern detectors to
monitor the computer program for a violation of the coding rule associated with said
each of the pattern detectors* (e.g., col.21: 6-67), *including the step of:*

*each of the pattern detectors inserting one or more further breakpoints into
the computer program to identify further points in the computer program that relate to*

the coding rule associated with said each of the pattern detectors (e.g., col.24: 11 – col.25: 67), and

tracking said additional breakpoints to determine whether the computer program violates the coding rule associated with said each of the pattern detectors (e.g., FIG. 14, col.23: 1 – col.24: 11; col.20: 6-62);

wherein each of said additional breakpoints identifies a respective step in the computer program that is part of the coding pattern associated with said one of the entry breakpoints (e.g., FIG. 14, col.23: 1 – col.24: 11; col.24: 47-57; col.66: 20-31), and

wherein each of the pattern detectors monitors the computer program for the occurrence of any one of the first set of defined conditions, the occurrence of which violates the coding role associated with said each of the pattern detectors (e.g., col.1: 24-36; col.32: 61 – col.33: 27; col.55: 31-47).

Morshed does not explicitly disclose *monitors the computer program for the non-occurrence of any one of a second set of defined conditions, the non-occurrence of which violates the coding rule associated with said each of the pattern detectors.*

However, in an analogous art, Bates further discloses *monitors the computer program for the non-occurrence of any one of a second set of defined conditions, the non-occurrence of which violates the coding rule associated with said each of the pattern detectors (e.g., FIG. 3, Unreachable Statement Column 31, col.3: 63 – col.4: 21; FIG. 4b, block 65, col.5: 29-67; FIG. 5, col.6: 52 – col.7: 8).*

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Bates' teaching into Morshed's teaching. One would have been motivated to do so to detect an unreachable breakpoint and display a warning to a user as suggested by Bates (e.g., col.1: 61 – col.2: 37).

Claim 11:

The rejection of claim 21 is incorporated. Morshed also discloses *a debugger for debugging the computer program, and further including the step of invoking the pattern*

detector manager when the debugger is used to debug the program (e.g., FIG. 12, col.21: 6-67).

Claim 12:

The rejection of claim 21 is incorporated. Morshed also discloses *the step of removing the entry breakpoints at specified times* (e.g., col.20: 6-39).

13. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morshed in view of US Patent No. 6,161,196 to Tsai (art made of record, hereinafter "Tsai").

Claim 21:

Morshed discloses *a method of detecting code patterns in a computer program that violate a given set of coding rules, the method comprising the steps of:*

defining a set of coding rules, each coding rule of the set of the coding rules being associated with a respective one pattern detector of a set of pattern detectors (e.g., FIG. 14, blocks 446, 450, 454, 458, 462);

providing a pattern detector manager for managing said pattern detectors (e.g., FIG. 14, blocks 442, 448, 452, 456, 460, 464, col.23: 1 – col.24: 11);

providing a computer program, and running the computer program in a debug mode (e.g., FIG. 12, col.21: 6-67; col.23: 36 – col.24: 11);

the pattern detector manager identifying, during the running of the computer program in the debug mode, points in the computer program that relate to said coding rules (e.g., FIG. 15-17, col.24: 11 – col. 25: 67), and

said pattern detector manager inserting into the computer program an entry breakpoint at each of said identified points (e.g., col.20: 40-49; col.20: 63 – col.21: 5);

said pattern detector manager invoking each of the pattern detectors to monitor the computer program for a violation of the coding rule associated with said each of the pattern detectors (e.g., col.21: 6-67), *including the step of:*

each of the pattern detectors inserting one or more further breakpoints into the computer program to identify further points in the computer program that relate to

the coding rule associated with said each of the pattern detectors (e.g., col.24: 11 – col.25: 67), *and*

tracking said additional breakpoints to determine whether the computer program violates the coding rule associated with said each of the pattern detectors (e.g., FIG. 14, col.23: 1 – col.24: 11; col.20: 6-62);

wherein each of said additional breakpoints identifies a respective step in the computer program that is part of the coding pattern associated with said one of the entry breakpoints (e.g., FIG. 14, col.23: 1 – col.24: 11; col.24: 47-57; col.66: 20-31), *and*

wherein each of the pattern detectors monitors the computer program for the occurrence of any one of the first set of defined conditions, the occurrence of which violates the coding role associated with said each of the pattern detectors (e.g., col.1: 24-36; col.32: 61 – col.33: 27; col.55: 31-47).

Morshed does not explicitly disclose *monitors the computer program for the non-occurrence of any one of a second set of defined conditions, the non-occurrence of which violates the coding rule associated with said each of the pattern detectors.*

However, in an analogous art, Tsai further discloses *monitors the computer program for the non-occurrence of any one of a second set of defined conditions, the non-occurrence of which violates the coding rule associated with said each of the pattern detectors* (e.g., col.10: 58-67).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Tsai' teaching into Morshed's teaching. One would have been motivated to do so to declare faults after a maximum wait threshold is reached as suggested by Tsai (e.g., col.10: 58-67).

Conclusion

14. Any inquiry concerning this communication should be directed to examiner Thuy Dao (Twee), whose telephone is (571) 272 8570. The examiner can normally be reached on every Tuesday, Thursday, and Friday from 6:00AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam, can be reached at (571) 272 3695.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273 8300.

Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is (571) 272 2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

T. Dao

TUAN DAM
SUPERVISORY PATENT EXAMINER